

Topics in Primary Care Medicine

The Lumpy Breast

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"Topics in Primary Care Medicine" presents articles on common diagnostic or therapeutic problems encountered in primary care practice. Physicians interested in contributing to the series are encouraged to contact the series' editors.

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Lumps in the breast are common—in as many as 50% of premenopausal women, breast lumps are found on careful physical examination. Most of these lumps are benign, but the fact that breast cancer is in the differential diagnosis may require breast imaging and tissue sampling. If breast lumps are benign, a physician must decide if the woman has an increased risk of breast cancer developing, if screening for breast cancer should be more frequent or more intense, and if any treatment is necessary.

Definitions

The terms used by clinicians, radiologists, and pathologists to describe breast masses are often confusing. To avoid this problem, we will begin with several definitions. "Breast lumps" are masses in the breast noted on physical examination that may be either benign or malignant. "Benign breast disease" includes any breast lesion that is not malignant. Various findings on history, physical examination, and breast imaging may support the diagnosis of benign disease, but, strictly speaking, benign breast disease is a pathologic definition and should be applied only to masses that have undergone tissue sampling. It is a heterogeneous group of lesions, including fibrocystic disease, fibroadenoma, and other uncommon conditions such as mastitis, lipoma, traumatic fat necrosis, and galactoceles. At biopsy, 90% to 95% of all benign breast disease is fibrocystic disease or fibroadenoma.

"Fibrocystic disease" is an ill-defined group of pathologic breast lesions, including cysts, fibrosis, adenosis, duct ectasia, hyperplasia, and papilloma. The incidence of fibrocystic disease increases with age, peaks at about the time of menopause, and then declines. Clinically, women with fibrocystic disease often have multiple tender nodules that are symmetrically distributed in both breasts. The nodules typically increase in size and become more painful just before the menses. Some forms of fibrocystic disease cause a solitary mass. Occasionally no palpable mass is evident, and the diagnosis is noted incidentally at biopsy or autopsy.

"Fibroadenoma" is another pathologic type of benign breast tumor. It is common in women younger than 30 years and becomes less common with increasing age. It usually

presents as a solitary, firm, rubbery, smooth, and mobile mass. Findings on history, physical examination, or mammogram may suggest fibrocystic disease or fibroadenoma, but these terms should be used only as pathologic diagnoses.

Epidemiology

As many as 50% of premenopausal women have breast lumps noted on a careful physical examination, and as many as 89% of postmenopausal women have pathologic evidence of benign breast disease at autopsy. Among women younger than 30 with benign breast disease, fibrocystic disease and fibroadenoma are about equally represented, each accounting for about 45% of cases. In women older than 30, about 85% of cases are fibrocystic disease and only 10% are fibroadenoma. In some studies, these two conditions are more common in women who are white, of upper socioeconomic status, and obese. These factors may reflect better access to medical care in white upper-class women and more difficulty in detecting lumps in obese women. Classic risk factors for breast cancer—personal or family history of breast cancer, early menarche, late menopause, and nulliparity—are not clearly associated with benign breast disease. A lower incidence of the disease in women who use oral contraceptive pills has consistently been reported, but this may reflect the fact that many physicians hesitate to initiate such therapy in women with breast lumps.

Clinical Evaluation

The main objective of a clinical examination is to decide if breast lumps are suggestive of breast cancer. If a lump has been noted by the patient, she should be asked how long it has been present, if it waxes and wanes with the menstrual cycle, and if there is associated cyclic tenderness. Nodules that have been present and unchanged for more than a year are usually benign, and cyclic symptoms suggest benign disease. Risk factors for breast cancer, including a previous history of breast cancer, a family history of breast cancer, and increasing age, should be reviewed, as well as symptoms of breast cancer such as fatigue, weight loss, and bone pain.

The proper performance of a breast examination should

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include inspection and palpation of the breast, an attempt to express nipple fluid, and palpation of the lymph nodes. An examination should always be done, or repeated, at seven to ten days into the menstrual cycle because some suggestive masses noted just before the menses will regress or disappear as hormonal stimulation of the breast decreases.

Physical findings should be categorized as benign or suggestive of breast cancer. On inspection, skin dimpling, a spontaneous nipple discharge, or asymmetry of the breasts is suggestive. On palpation, benign breast lumps are usually multiple, bilateral, generally uniform, and symmetrically distributed, and they may be slightly tender. The sensation on palpation is similar to the feeling of sliding the fingers over a mass of peas or grapes. The consistency of the nodules may vary from firm and rubbery to fluctuant. Clinicians often label these physical findings as "fibrocystic disease," but without tissue sampling, this condition should be called "lumpy breasts." A breast lump is described as a dominant mass when the breasts are diffusely nodular but one mass is clearly larger, firmer, or asymmetric in location. Dominant masses are suggestive of breast cancer and require further evaluation. A lump is described as solitary if no other masses are present. In women younger than 25 years, solitary masses that are smooth, rubbery, and mobile are most commonly found to be fibroadenoma at biopsy, but without tissue sampling should simply be called a "solitary breast mass." "Thickening" is another descriptive term used to refer to an area of the breast that feels denser than the rest of the tissue. This most commonly occurs in the upper outer quadrant of the breasts—an area where there is more glandular tissue than in the other quadrants. If benign, thickening should be roughly symmetric.

Dominant or solitary masses that are small, soft or cystic, smooth, and movable are more likely to be benign. Conversely, masses that are hard, irregular, or fixed and asymmetrically thickened suggest breast cancer. Unfortunately, the clinical characteristics of these suspicious physical findings are not accurate enough to distinguish benign from malignant disease, and further diagnostic testing is necessary.

Diagnostic Evaluation

Routine laboratory tests are not helpful in evaluating breast nodules. Useful diagnostic procedures include mammography, fine needle aspiration, excisional biopsy, and, occasionally, echomammography.

Mammograms are usually classified as benign, malignant, or suspicious based on established radiologic characteristics. In the evaluation of a suspicious breast mass, mammography has a sensitivity of about 80% and a specificity of about 90%. About 20% of women with palpable cancer will have a mammogram that shows no evidence of cancer, and this rate may be as high as 30% in younger women with dense breasts. Mammography should be done in the evaluation of a suspicious breast mass, but a normal mammogram alone should not delay tissue sampling. A mammogram is useful to confirm the clinical suggestion of a malignant mass and especially to identify other nonpalpable suspicious areas in both breasts that might also require evaluation.

Fine needle aspiration (FNA) is a method for obtaining fluid and cellular material from a palpable mass. A fine needle (22 or 23 gauge) is inserted directly into the suspicious mass, and aspirated material is immediately smeared and fixed for cytologic examination. The procedure is no

more painful than venipuncture, it is rapid—about five minutes for the patient procedure and 24 to 48 hours for the cytologic evaluation—essentially without side effects, and relatively inexpensive. The results of a cytologic examination of aspirated material are reported as malignant, benign, or suspicious. When done and interpreted by an experienced cytologist, the false-negative rate—FNA read as benign when the lesion is malignant—is about 1.4%, a level that compares favorably with frozen section (0.7% to 4.9%) and excisional biopsy (1.4%). The false-positive rate—FNA read as malignant when the lesion is benign—approaches 0%. When the aspiration, fixing, or cytologic evaluation is done by inexperienced personnel, the accuracy of the test may fall to unacceptable levels. A clinician considering using fine needle aspiration of breast lumps should check with the cytologist who evaluates the aspirates to make sure the false-positive and false-negative rates are acceptable.

In clinical settings where expert FNA and cytologic evaluation are not available, the evaluation of a suspicious mass requires excisional biopsy. The biopsy is usually done as an outpatient surgical procedure, using local anesthesia, with an attempt made to remove the entire mass. The subsequent risk status and treatment are based on the pathologic diagnosis.

At present, echomammography is not sufficiently accurate to be useful for distinguishing benign from malignant breast masses, although it reliably differentiates cystic from solid masses. Because breast cysts are invariably benign, a suggestive mass that is clearly cystic on an ultrasound study needs no further evaluation. For suggestive palpable masses, FNA is preferred because it is highly accurate in diagnosing cysts, will also provide diagnostic information if the mass is solid, and is generally less expensive than echomammography. For nonpalpable suspicious masses noted on mammography, the echomammographic diagnosis of a cyst may obviate the necessity for mammographically directed biopsy because as many as 25% of such lesions are cysts.

Figure 1 outlines a general approach for evaluating a woman with breast lumps. If the lumps are multiple, bilateral, diffuse, and symmetric, no further diagnostic testing is necessary. Examination in such women may be difficult, however, and routine monthly breast self-examination, a yearly physical examination by the physician, and screening mammography as appropriate for age and risk factors should be emphasized. A woman with a solitary or dominant mass or an area of asymmetric thickening should undergo mammography to evaluate the mass, to identify additional suspicious areas, and to provide a baseline for future examinations. Regardless of the results of the mammogram, the woman should have fine needle aspiration of the mass. If a solid mass is aspirated, cellular material should be sent for cytologic evaluation. If fluid is obtained at aspiration and the mass disappears, no further evaluation is necessary. If, however, fluid is obtained by aspiration but a palpable mass remains, the needle may have missed a solid mass next to the cyst or entered both a solid mass and a cyst, diluting the aspirated cells with benign cyst fluid. In this situation, the remaining solid mass should be immediately reaspirated and a specimen from the solid mass sent for a cytologic examination.

If the cytologic finding is of malignancy, the patient should be referred for a surgical evaluation. Suspicious cytologic findings should be followed by an excisional biopsy. Benign cytologic results in the setting of a mammogram

showing no features of malignancy require a careful clinical evaluation at six-month intervals. If the findings of a physical examination are suggestive of breast cancer, or the mammogram suggests possible malignancy, an excisional biopsy should be done despite benign cytologic findings on aspiration.

Risk of Breast Cancer

Most types of benign breast disease are not associated with an increased risk for the subsequent development of breast cancer (Table 1). There is a slightly increased risk for women with hyperplasia or papilloma (relative risk = 1.5) and a moderately increased risk for women with atypical hyperplasia (relative risk = 5). In about 8% of women with atypical hyperplasia, and in as many as 20% of such women who also have a family history of breast cancer, breast cancer develops within 15 years. All women with atypical hyperplasia should be followed with a yearly physical examination, a yearly mammogram, and FNA or biopsy of any suspicious lump.

An increased risk of subsequent breast cancer has only been established for certain pathologic categories of fibrocystic disease diagnosed after biopsy. There is no proof of increased risk in women with breast lumps who have not had a biopsy. Of all women who do have a breast biopsy, only 2% to 4% have atypical hyperplasia. The proportion of breast lumps that are atypical hyperplasia among women who have not had a biopsy is not known but may be lower than among women who do have a biopsy because women who undergo biopsy tend to have other risk factors for breast cancer. Thus, perhaps 1% to 2% of all women with lumpy breasts who have not had a biopsy are at increased risk for breast cancer. Unfortunately, these women cannot be distinguished from women not at increased risk by physical examination, mammography, or FNA cytologic examination. We do not feel

TABLE 1.—Pathologic Types of Benign Breast Disease Classified by Relative Risk for Breast Cancer

Risk	Type of Breast Disease
No increased risk for breast cancer— 70% of all biopsies	Fibrocystic breast disease Adenosis Apocrine metaplasia Cyst(s) Duct ectasia Fibrosis Hyperplasia, mild Squamous metaplasia Fibroadenoma Mastitis
Slightly increased risk for breast cancer— 26% to 28% of all biopsies (relative risk=1.5-2)	Fibrocystic breast disease Hyperplasia, moderate or florid Papilloma
Moderately increased risk for breast cancer— 2% to 4% of all biopsies (relative risk=5)	Fibrocystic breast disease Atypical lobular hyperplasia Atypical ductal hyperplasia

that the increased risk in 1% to 2% of women with breast lumps justifies diagnostic mammography or tissue sampling in all such women.

Treatment

Many women with lumpy breasts have breast tenderness that intensifies during the last few days of the menstrual cycle, then resolves with the onset of the menses. The overwhelming majority need no treatment except the assurance that their discomfort is physiologic and not a sign of cancer. There is, however, a small group of women who have severe breast pain requiring symptomatic treatment. While a supportive brassiere may be somewhat helpful, many of these women need medical therapy. Also, there are a few women with benign breast nodules in whom dominant masses requiring aspiration or biopsy repeatedly develop. These women may desire treatment to reduce the need for such procedures.

Many medications have been advocated for the treatment of benign breast lumps. The two most publicized therapies—abstaining from methylxanthines (coffee, tea, chocolate, colas, theophylline) and taking low doses of oral vitamin E—are attractive because they are inexpensive and harmless. Studies of dietary abstinence from methylxanthines are conflicting, but there is some suggestion of efficacy. Two recent controlled trials showed no significant difference between treatment with vitamin E and placebo. Good results are anecdotally reported using moderate salt restriction, mild diuretics, and nonsteroidal anti-inflammatory drugs. Patients who do not respond to these simple modalities may respond to treatment with danazol. This medication has been shown in randomized controlled trials to be effective in relieving pain and nodularity, but it has substantial androgenic side effects that may not be reversible. Thus, danazol should be administered only by a physician familiar with its use.

Conclusions

Lumpy, tender breasts are common in women of all ages. Most of these women have no significantly increased risk of breast cancer, and therapy is necessary in only a small group of women with severe breast pain. The clinical task for pri-

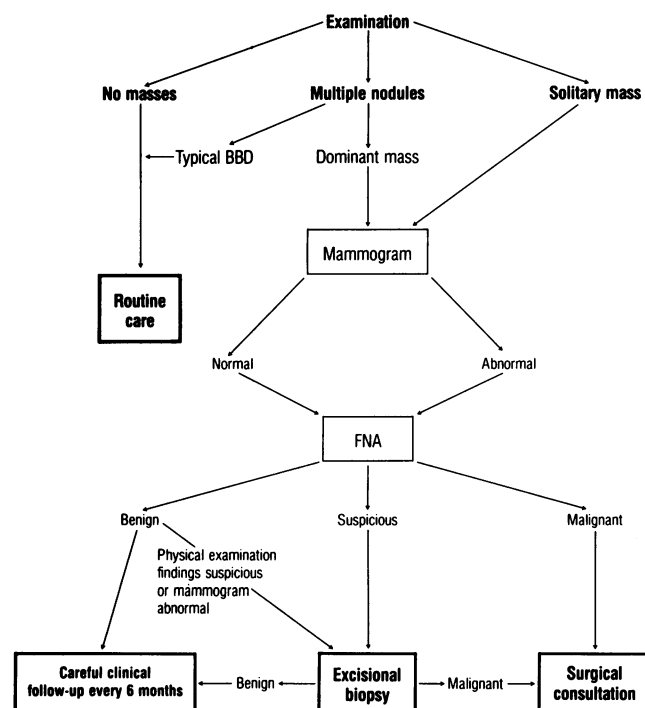


Figure 1.—The schematic shows the evaluation of a suspicious breast mass. BBD = benign breast disease, FNA = fine needle aspiration

many care physicians is to distinguish benign breast lumps from breast cancer. Fine needle aspiration is a major advance in evaluating palpable nodules. Used together with physical examination and mammography, it can accurately distinguish benign from malignant breast masses.

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Circumventing Diarrhea

BISMUTH SUBSALICYLATE (PEPTO-BISMOL) is one of the agents now recommended to help control diarrhea; however, primarily in the young person but also in the older person who is on aspirin therapy for something like arthritis, salicylate intoxication may develop because there is salicylate absorption from this substance. Also, you need to warn patients about their stools becoming black. Many times, this is thought to be due to melena, but the bismuth will cause the stools to become black. Recently, one other thing has been thought to be true about Pepto-Bismol: bismuth salts are thought to be an antimicrobial agent that actually prevents multiplication of these organisms in the gastrointestinal tract. So, for these reasons, Pepto-Bismol is felt to be one of the mainstays now for control of acute diarrhea.

Kaopectate, which is an absorptive agent, is very safe. It works by making the stools more bulky. Remember, though, that the loss of fluid in the stools probably remains about the same, so patients are still at risk of becoming dehydrated, although they can control their stools a little better.

About 40% of patients from developed areas who go to a developing area are going to get travelers' diarrhea and about half of these are due to enterotoxigenic *E coli*.

You are probably also going to be asked about prevention of travelers' diarrhea. It is now thought that preventive treatment should be reserved for business people on critical short-term assignments or persons with significant underlying disease. The current recommendations are either to use trimethoprim-sulfamethoxazole or doxycycline as antibiotic agents to control and prevent travelers' diarrhea. Pepto-Bismol has also recently been shown to be effective, but you'd probably have to take another couple of suitcases loaded with Pepto-Bismol along with you in order for it to be useful. Probably it's most important that these travelers just carry trimethoprim-sulfamethoxazole or doxycycline with them and rapidly institute therapy if they do become ill, rather than trying to take it the entire time they are away. If they are going to be away for more than two weeks, it's inappropriate to use prophylaxis for travelers' diarrhea.

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